

ABSTRACT OF THE DISCLOSURE

A photosensor assembly has charge transfer gates that are segmented into multiple sections. Individual sections can be controlled. For a small image, only the appropriate sections of the charge transfer gates are used to transfer charges from the photosensors to charge shift registers. The charge shift registers shift the charges toward a node for analog-to-digital conversion. When all the charges have been shifted beyond the appropriate sections of the charge transfer gates, the sections of the charge transfer gates can be activated again. As a result, multiple scanlines of the small image may be multiplexed onto the charge shift register. In the steady state, only the charges from a small section of the image are converted, thereby reducing processing time. Excess charges in photosensors that are not being used are drained into overflow drains.